Silent Sentry

Representative of technology transfers in the field of public safety is a personal security system for summoning aid in emergencies

Located in Watsonville, California, Independence Square is a hundred-unit apartment complex designed specifically to house physically handicapped and elderly tenants. Built and operated by the local Independence Square Housing Corporation, the complex has a number of architectural and functional provisions intended to improve the quality of life and promote self-sufficiency among its aged and handicapped clientele. One such feature is a NASA-developed personal security system that enables a resident to summon instant help in case of medical emergency or threatened violence.

Produced commercially by Sentry Products Inc., Santa Clara, California, the system is called SCAN, for Silent Communications Alarm Network. Its principal elements are a pen-shaped signaling device—"silent" because its ultrasonic alert signal is inaudible to the human ear—and a system of receivers interconnected with a constantly-monitored master console. At Independence Square and similar installations, it works this way:

The SCAN pen, which weighs only two ounces, is worn on a necklace or attached by a clip to the user's clothing. The person in trouble simply presses a clasp, releasing a hammer inside the pen which strikes an aluminum bar. The impact causes the bar to resonate like a tuning fork and emit the ultrasonic signal, which is detected by the nearest of many small receivers mounted in apartments, corridors, stairwells, elevators and carports.

The receiver converts the silent tone to electrical energy and triggers two simultaneous actions. The electric current lights a bulb on the receiver, acknowledging receipt of the call for help. At the same time, the alert is transmitted to the master console, setting off an audio alarm and activating a console light that indicates the location of the emergency. The console attendant initiates help action and also extinguishes the light at the victim's location, a signal that help is on the way.

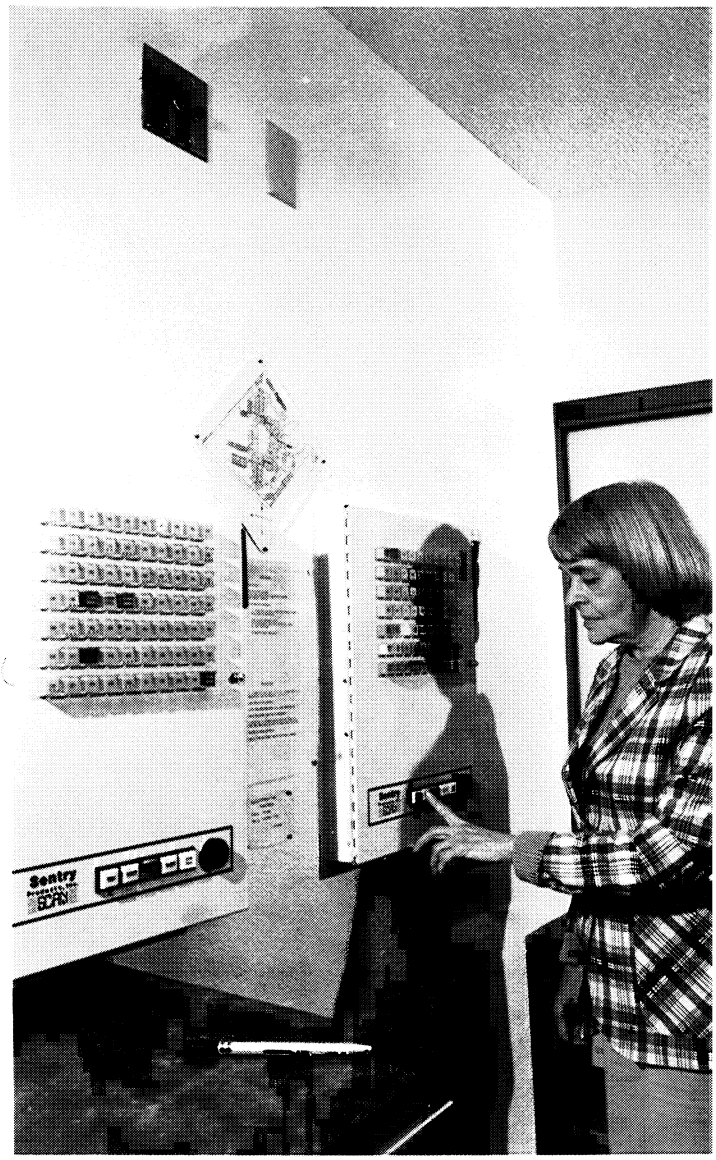
SCAN is not only an effective alarm system, it also has ancillary advantages. In use at housing facilities like Independence Square, it has psychological value: it offers peace of mind, the comforting assurance that, should an emergency arise, a simple press of the pen clasp will bring

assistance. In other applications—schools, for example—it acts as a deterrent to disruptive behavior.

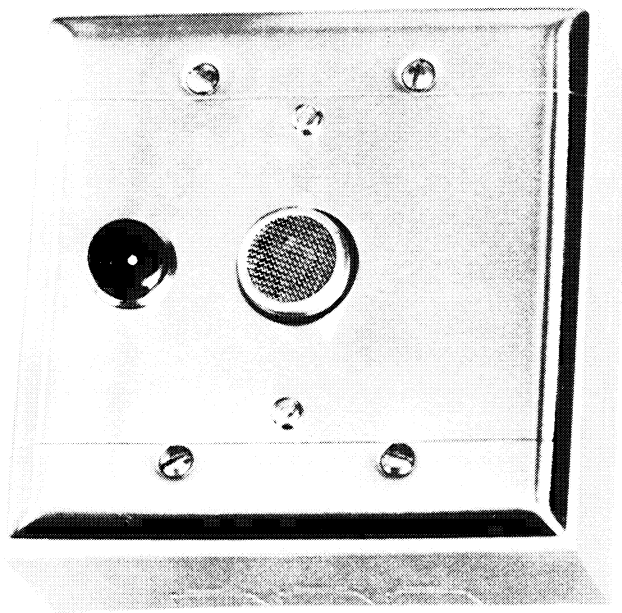
It was an outbreak of violence in a school—John Kennedy High School, Sacramento, California—that triggered SCAN's development. Struggling to restore order, the school principal sought NASA's assistance in developing an alarm system. Since school violence was widespread in the U.S., NASA undertook the development as part of its Technology Utilization Program, one facet of which involves application of aerospace technology to solution of public sector problems.

In developing SCAN, NASA applied its electronics expertise in design of the receivers/master console segment of the system, but decided against electronics for the signaling pen in the interests of durability and maintenance; the pen has no batteries to replace nor electronic parts which might fail from the frequent jolts expected in a device constantly worn by the user. NASA combined ultrasonic transmission and space telemetry technologies to produce the simple, reliable and very durable pen that has only one moving part.

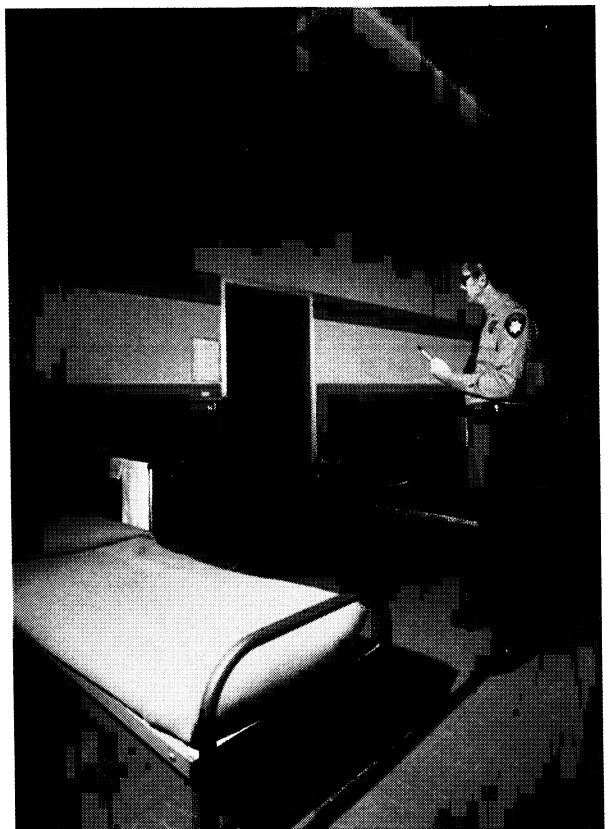
The first pilot test of the SCAN system was conducted in the Sacramento high school where the idea originated. A second experimental system was installed at Green Fair Towers, an apartment complex for the elderly in the same city. In both installations, SCAN demonstrated high reliability in the alarm function and a capability for almost zero maintenance. NASA subsequently licensed Sentry Products to manufacture and market the system, which is now in use in more than 40 major installations—apartments, schools, juvenile homes, correctional institutions, courthouses, hospitals, industrial facilities and public buildings.



One of the major installations of the NASA-developed SCAN personal security system is at Independence Square, a California apartment complex for handicapped and elderly tenants. The residents pictured are wearing the SCAN signaling pen around their necks; in an emergency, they can summon assistance simply by pressing the pen clasp. The pen emits an ultrasonic signal which is transmitted to a constantly monitored master console (right). The lighted yellow button on the console indicates the location of the emergency.



The SCAN pen shown weighs only two ounces, has no batteries or electronics and only one moving part. Its ultrasonic alert signal is picked up by a wall- or ceiling-mounted receiver (above right) and relayed to a master console such as the one pictured (right), located at Tubman II High School, Compton, California.



In this photo, a security officer at the San Mateo County Work Furlough Camp, Redwood City, California, is conducting a transmission test of his SCAN signaling pen.